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A SCHEME OF VITAL FACULTY.

Human Personality and its Survival of Bodily Death.

By Frederic W. H. Myers. In two volumes. Vol. i. pp. xlv+700; vol. ii. pp. xx+660, including elaborate index. (London: Longmans, Green and Co., 1903.) Price 2l. 2s. net.

IN introducing this book to what must be regarded for the most part as a hostile audience, I would claim for it that it is a record of the life-work of a pertinacious and industrious student, in a region beyond the borderland of present orthodox science; and would explain that it has for its object the better comprehension and coordination of a multitude of human faculties, some of them recognised as real though obscure, others not yet generally recognised as existing. The phenomena of sleep, of genius, of multiple personality, of hysteria, of hypnotism, of hyperæsthesia, and of trance, are among those generally recognised by medical specialists and practically treated; though, in truth, most of them seem to be regarded chiefly or solely as pathological curiosities. The phenomena of sensory and motor automatism, of telepathy, and of clairvoyance, are not among the human faculties yet generally recognised. By long study Myers was able to accept them all, in various degrees, and he discerned a thread of connection running through them, so that he felt it possible gradually to design a comprehensive scheme which should include them all,—a building, as it were, in the composition of which each constituent filled its appointed place, so that no part was left forlorn and unsupported by adjacent materials, and so that the eye of science subsequently glancing over it might be willing to recognise the possibility and appropriateness of structures which when isolated had seemed strange and fantastic and incredible.

The construction of such a unified scheme, welding together phenomena often spoken of as occult with others which, though recognised by science, were difficult of interpretation and classification,—like genius, for instance, or hysteria in its many aspects,—was Myers's end and aim; and the result is embodied in two closely-printed volumes. Whether he has succeeded, it is for posterity and for psychologists to say. His treatment is not likely at once to commend itself to philosophers, and it is not as a philosopher that he writes; his treatment aims at being scientific, but it is unusual in being very distinctly literary in form. I shall not argue the matter, but shall content myself with giving such few extracts from the earlier portion of the book as may legitimately present to a critical audience the object and motive power of the whole treatise, a treatise on human personality and vital faculty, which, whether successful or not, is, at all events, more comprehensive and more ambitious than anything which has hitherto been attempted by man in that direction.

If the objection is made that Myers was not a man of science, he himself would have admitted it at once; but I am not so ready to admit it for him. Without the technical training, he seemed to me definitely to

have many of the faculties and instincts and powers of a man of science, combined with such a mental grasp, vivid imagination, and power of expression, as would put most of us to shame.

However that may be, I would point out that men not professionally scientific have had a profound influence on scientific progress before now, and if I were to seek for an analogy to the effect which I expect these volumes will have upon the development of the psychical sciences, I would liken it by anticipation to the effect of the "Novum Organon" upon the physical sciences. Francis Bacon was a man of letters, not a scientific man, but he recalled all educated men to the possibility of exploration by experiment and observation, and so cleared the ground and paved the way for the general acceptance of the results of Gilbert and other great and truly scientific men of the same and subsequent eras, whose pioneering work might else have been lost in a mist of dislike, disbelief, and obscurantism.

Myers has shown that obscure psychical phenomena can be legitimately investigated by observation and experiment, and can be regarded as part of a sufficiently comprehensive scheme of natural knowledge; him, then, I liken to Bacon. If we ask who corresponds to the Gilbert of the same age in the psychical sciences, few of us would have any hesitation in bringing forward such names as those of Wallace and of Crookes.

In so far as it may be said that Bacon did not wholly appreciate the work of Gilbert, so we may say something similar of Myers's attitude to what he was constrained to consider the somewhat too trusting disposition of that eminent man Dr. Wallace; though of the more stringent methods and results of Sir W. Crookes he was keenly appreciative.

I am merely stating facts without comment, and will now content myself with a few explanatory and helpful extracts, showing Myers's recognition to the full of the importance of strictly scientific procedure, his appreciation of the stringency and value of scientific proof, and of the difficulties attending scientific investigation in so unknown and comparatively unexplored a territory as that of the psychical nature and spiritual faculties of man.

"The method which our race has found most effective in acquiring knowledge is by this time familiar to all men. It is the method of modern Science—that process which consists in an interrogation of Nature entirely dispassionate, patient, systematic; such careful experiment and cumulative record as can often elicit from her slightest indications her deepest truths. That method is now dominant throughout the civilised world; and although in many directions experiments may be difficult and dubious, facts rare and elusive, Science works slowly on and bides her time—refusing to fall back upon tradition or to launch into speculation, merely because strait is the gate which leads to valid discovery, indisputable truth. . . .

"It is my object in the present work—as it has from the first been the object of the Society for Psychical Research, on whose behalf most of the evidence here set forth has been collected—to do what can be done to break down that artificial wall of demarcation which has thus far excluded from scientific treatment precisely the problems which stand in most need of all the aids to discovery which such treatment can afford.

"Yet let me first explain that by the word 'scien-

tific 'I signify an authority to which I submit myself—not a standard which I claim to attain. Any science of which I can here speak as possible must be a *nascent* science—not such as one of those vast systems of connected knowledge which thousands of experts now steadily push forward in laboratories in every land—but such as each one of those great sciences was in its dim and poor beginning, when a few monks groped among the properties of 'the noble metals,' or a few Chaldean shepherds outwatched the setting stars."

As an illustration of the temper of mind which Myers brings to bear, and conceives ought always to be brought to bear, to the understanding of obscure phenomena, I will take the case of witchcraft, and quote as follows:—

"The lesson which witchcraft teaches with regard to the validity of human testimony is the more remarkable because it was so long and so completely misunderstood. The belief in witches long passed—as well it might—as the culminant example of human ignorance and folly; and in so comparatively recent a book as Mr. Lecky's 'History of Rationalism,' the sudden decline of this popular conviction, without argument or disapproval, is used to illustrate the irresistible melting away of error and falsity in the 'intellectual climate' of a wiser age. Since about 1880, however, when French experiments especially had afforded conspicuous examples of what a hysterical woman could come to believe under suggestion from others or from herself, it has begun to be felt that the phenomena of witchcraft were very much what the phenomena of the Salpêtrière would seem to be to the patients themselves, if left alone in the hospital without a medical staff. And in 'Phantasms of the Living,' Edmund Gurney, after subjecting the literature of witchcraft to a more careful analysis than anyone till then had thought it worth while to apply, was able to show that practically all recorded first-hand depositions (made apart from torture) in the long story of witchcraft may quite possibly have been *true*, to the best belief of the deponents; true, that is to say, as representing the conviction of sane (though often hysterical) persons, who merely made the almost inevitable mistake of confusing self-suggested hallucinations with waking fact. Nay, even the insensible spots on the witches were no doubt really anæsthetic—involved a first discovery of a now familiar clinical symptom—the *zones analgésiques* of the patients of Pitres or Charcot. Witchcraft, in fact, was a gigantic, a cruel psychological and pathological experiment conducted by inquisitors upon hysteria; but it was conducted in the dark, and when the barbarous explanation dropped out of credence much of possible discovery was submerged as well."

Myers's attitude to the in some quarters prevalent creed called spiritualism has been frequently misunderstood, but it is illustrated by the following extract:—

"A large group of persons have founded upon these and similar facts a scheme of belief known as Modern Spiritualism, or Spiritism. Later chapters in this book will show how much I owe to certain observations made by members of this group—how often my own conclusions concur with conclusions at which they have previously arrived. And yet this work of mine is in large measure a critical attack upon the main Spiritist position, as held, say, by Mr. A. R. Wallace, its most eminent living supporter—the belief, namely, that all or almost all supernormal phenomena are due to the action of the spirits of the dead. By far the larger proportion, as I hold, are due to the action of the still embodied spirit of the agent or percipient himself. Apart from speculative differences, moreover, I alto-

gether dissent from the conversion into a sectarian creed of what I hold should be a branch of scientific inquiry, growing naturally out of our existing knowledge. It is, I believe, largely to this temper of uncritical acceptance, degenerating often into blind credulity, that we must refer the lack of progress in Spiritualistic literature, and the encouragement which has often been bestowed upon manifest fraud—so often, indeed, as to create among scientific men a strong indisposition to the study of phenomena recorded or advocated in a tone so alien from Science."

He then relates the rise of a society for investigating psychical matters in a new fashion, among eminent men at Cambridge, who felt that the time was ripe for an attack on superstition and on world-old legendary tradition concerning an unseen world and occult influences—the subject-matter, in fact, of all religion—by purely scientific terrestrial methods, and in the conviction

"that no adequate attempt had yet been made even to determine whether anything could be learnt as to an unseen world or no; for that if anything were knowable about such a world in such fashion that Science could adopt and maintain that knowledge, it must be discovered by no analysis of tradition, and by no manipulation of metaphysics, but simply by experiment and observation—simply by the application to phenomena within us and around us of precisely the same methods of deliberate, dispassionate, exact inquiry which have built up our actual knowledge of the world which we can touch and see. I can hardly even now guess to how many of my readers this will seem a truism, and to how many a paradox. Truism or paradox, such a thought suggested a kind of effort, which, so far as we could discover, had never yet been made. For what seemed needful was an inquiry of quite other scope than the mere analysis of historical documents, or of the *origines* of any alleged revelation in the past. It must be an inquiry resting primarily, as all scientific inquiries in the stricter sense now must rest, upon objective facts actually observable, upon experiments which we can repeat to-day, and which we may hope to carry further to-morrow. It must be an inquiry based, to use an old term, on the uniformitarian hypothesis; on the presumption, that is to say, that if a spiritual world exists, and if that world has at any epoch been manifest or even discoverable, then it ought to be manifest or discoverable now."

As to the objection frequently urged against psychical investigation, on the ground of the asserted triviality and apparent worthlessness of some of the faculties which are the object of study, Myers says:—

"In investigating those faculties we have been in no wise deterred by the fact of the apparent uselessness of some of them for our waking ends. *Useless* is a pre-scientific, even an anti-scientific term, which has perhaps proved a greater stumbling-block to research in psychology than in any other science. In science the *use* of phenomena is to prove laws, and the more bizarre and trivial the phenomena, the greater the chance of their directing us to some law which has been overlooked till now."

Before embarking on his long and laborious quest—the enumeration and dissection of instances, and the finding of a hypothesis that should fit and weld them all together—he concludes this part of his introduction with the following modest claim:—

"The truest success of this book will lie in its rapid supersession by a better. For this will show that at

least I have not erred in supposing that a serious treatise on these topics is nothing else than the inevitable complement and conclusion of the slow process by which man has brought under the domain of science every group of attainable phenomena in turn—every group save this.”

In the belief that this book marks an epoch in the history of psychical science, and that it will ultimately react with beneficial effect on the progress and enlargement of the scope of science generally, I venture to introduce this life-work of my friend to the readers of NATURE, or at least to such of them as are not already familiar with the subject.

OLIVER LODGE.

SCHOOL GEOMETRY REFORM.

A School Geometry. Parts i. and ii. By H. S. Hall, M.A., and F. H. Stevens, M.A. Pp. x + 140. (London: Macmillan and Co., Ltd., 1903.) Price 1s. 6d.

Experimental and Theoretical Course of Geometry. By A. T. Warren, M.A. Pp. viii + 248. (Oxford: the Clarendon Press, 1903.) Price 2s.

Elementary Geometry. By Frank R. Barrell, M.A., B.Sc. Section i., part i., pp. xi + 116. Price 1s. Section i., part ii., pp. vii + 117 to 168. Price 1s. (London: Longmans, Green and Co., 1903.)

Solid Geometry. By Dr. Franz Hoyer. Translated and Adapted by C. Godfrey, M.A., and E. A. Price, B.A. Pp. vii + 80. (London: Adam and Charles Black, 1903.)

A PERSON may be a Cambridge Wrangler, and yet unable to make a simple graphical construction with accuracy. The ordinary schoolboy's knowledge of practical geometry is generally worthless or nil, and his knowledge of pure geometry, the result of his premature encounter with Euclid, is of like character.

But this state of affairs is being rapidly changed. As Messrs. Hall and Stevens say in the first volume of their new geometry, "The working of examples should be made as important a part of a lesson in geometry as it is so considered in arithmetic and algebra."

The book contains an excellent collection of easy graphical and deductive exercises, many of the examples requiring numerical answers. The latter are given at the end. A boy working through this course should acquire a working knowledge of geometry, and a fair insight into the methods of deductive logic.

The volume contains the substance of Euclid book i., and is based on the recommendations of the Mathematical Association; the sequence of Euclid is in the main adhered to. There are two parts, the latter dealing with areas. In this the experimental course is incorporated with the deductive exercises, and assigned equal importance with the latter. This is a good feature, and is to be continued in a further volume which the authors have in preparation. In the present case, it seems to be a defect that the plan has not been carried out to the same, or even a greater, extent in part i., which is concerned with lines, angles, and rectilinear figures. Here it would appear to be

especially necessary to make the experimental course predominate. But the subject of school geometry is in a state of transition, and the authors have probably thought it well to proceed cautiously.

Mr. Warren's volume is also based on the report of the Committee of the Mathematical Association. The course includes the fundamental properties of the triangle and circle. Ratio and proportion, similar figures, and polygons are likewise considered. The experimental treatment occupies the first half of the book, and in the second half the same ground is covered, the propositions being formally established by deduction.

The two volumes by Mr. Barrell comprise the first of three sections of a new school geometry which, when complete, will extend to Euclid xi. and the mensuration of the simple geometrical solids. It is written in accordance with the new syllabus of the Cambridge Local Examinations, and the report of the Mathematical Association. Part i. is intended to take the place of Euclid, book i. Part ii. corresponds with Euclid, book iii., 1-34, and also includes a portion of book iv. In the treatment adopted, the experimental and practical course is worked in along with the deductive geometry, and is always made subordinate to the latter. We should like to see the demonstrative geometry relatively less prominent. A feature to be noticed is that the author gives three meanings of a plane angle, in the last of which the angle is regarded as the plane space swept out by a line of indefinite length (one way) turning about one end; the amount of turning is not the angle, but the measure of its magnitude. The author is right in stating that this conception is implied in many of Euclid's phrases. The numerical answers of lengths and areas are given to three significant figures, and of angles to the nearest ten minutes. In the latter case decimals of a degree would perhaps have been preferable.

The actual personal use of mathematical instruments for graphical computations is probably largely foreign to many of the authors of the new text-books, and the treatment suffers on this account. There must be much future development before any text-book can be allowed to become crystallised.

Now that the study of pure geometry is to include numerical as well as graphical computations, it may become necessary, and it is certainly very desirable, to introduce simple tables of functions of angles so as to be able to solve right angled triangles completely, instead of being restricted as at present to the property of complementary angles and the use of Euclid i., 47.

The "Solid Geometry" by Dr. Hoyer will illustrate how this branch of the subject is presented to youths in Germany. Chapters i. and ii. deal with the properties of the line and plane in space, and the solid angle, but in a much less formal manner than is the case in Euclid xi. The remaining chapters relate to the properties and mensuration of the prism, cylinder, pyramid, cone, sphere and regular polyhedra. Exercises are provided in great variety, chiefly of the numerical type, and all necessary answers are collected at the end of the volume, where the reader will also find a useful index.